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STROMATINIA DRY ROT OF GLADIOLUS

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Gladiolus (Gladiolus X hortulanus Bailey) is one of the most important floral crops grown for commercial cut flower and corm production. Nearly two thirds of all cut gladiolus produced in the U. S. are grown in Florida (4).

One of the major diseases of gladiolus is Stromatinia dry rot. It has not been frequently reported in Florida especially in the last ten years, however, it is economically important and measures should be taken to effectively survey for this disease. This disease is caused by the fungus Stromatinia gladioli (Drayt.) Whetz.; (formerly Sclerotinia gladioli Drayt.). In addition to gladiolus, this pathogen also attacks other members of the iris family such as Freesia, Crocus, Narcissus, Lapeirousia, Montbretia, and Acidanthera. The fungus is spread by planting infected corms and although disease symptoms may cause small losses on the first planting, the second or third plantings may become severely infected. Once infested, the soil remains a disease hazard for future gladiolus crops. The disease can manifest itself as a root and neck rot as well as a dry rot of corms (4).

Symptoms: Stromatinia causes brown stains and darkened bases of corm scales. When infection is severe, the leaf base tissue becomes shredded. Diseased tissue in the neck of larger plants becomes yellow-brown and has a strong musty odor. When planting small corms, the neck rot phase of this disease can kill plants in groups. Several days after neck tissues are killed, very small, sclerotia develop on dieased leaf bases.

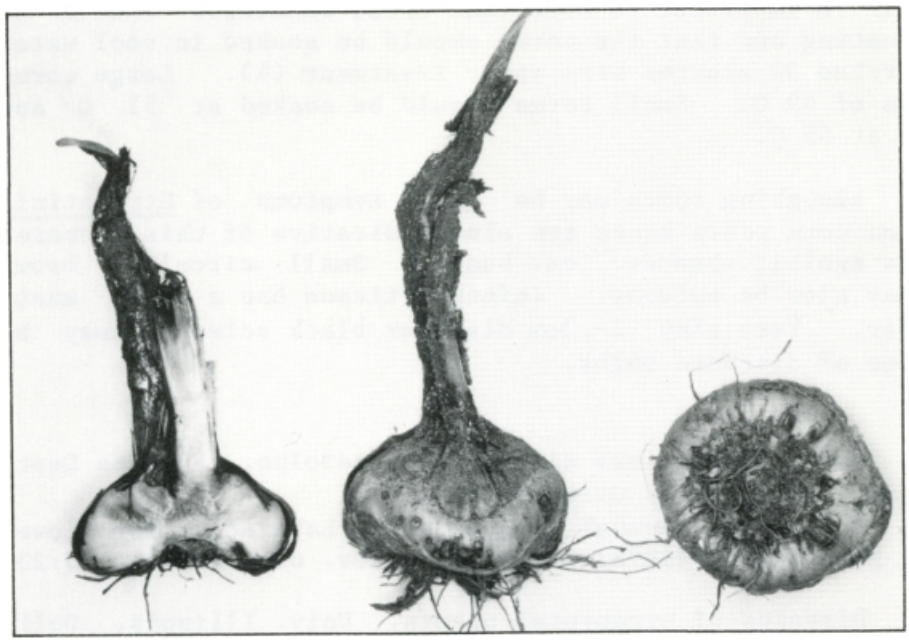

Fig. 1. Stromatinia dry rot of gladiolus showing shredding of leaf bases and defined corm lesions. DPI Photo No. 2150.

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harvest and during storage. The spots are small, circular and brown with well defined edges and are located along the node lines and on top of the corm. The lesions may progress along the vascular strands producing a hard dry rot (1,3,4). Root cortex that becomes yellow and sloughs off is an early sign of Stromatinia dry rot disease. As a result of the root rot phase of this disease, very short flower stems are produced.

Epidemiology. Sclerotia (the small black resting bodies) of Stromatinia gladioli may persist for long periods of time (over ten years) in dry and well drained sandy soil. Sclerotia may lose viability within several weeks in warm moist soil. These resting sclerotia germinate in the soil when stimulated by root exudates of host plants belonging to the Iridaceae. Stromatinia dry rot is a minor problem in warm areas where soil temperature regularly exceeds 20 C at 10-12 cm, but disease increases during prolonged cool rainy weather. Although Stromatinia gladioli will produce apothecia (sexual fruiting structures) under controlled laboratory conditions, ascospores are not involved in the disease cycle.

Control: Warm water treatment of cormels, soil fumigation, and the fungicides captan, dicloran, vinclozolin (5), and benomyl will control Stromatinia dry rot. However, effective disease control depends on prevention (planting disease free corms in non-infested soil). There is no cure after symptoms appear. Stromatinia can be controlled without chemicals by following several cultural methods. Flooding or covering the soil with clear plastic during the warmest 4 or 5 weeks of summer and planting in raised beds where soil temperatures remain above 20 C are effective procedures. Harvested corms should be cured quickly and corm husks should be removed before planting. Also, if possible, plant where gladiolus has not been grown previously or treat corms in warm water containing captan, dicloran, or vinclozolin and benomyl. It is important to note that these chemicals should be added to the water before heating and that the corms should be soaked in cool water overnight prior to the prescribed 30 minutes warm water treatment (4). Large corms require a water temperature of 49 C. Small corms should be soaked at 51 C and cormels are treated in water at 55 C.

Survey & Detection. Rotted sloughing roots may be early symptoms of Stromatinia infection. Necrotic areas on corm scale bases are also indicative of this disease. Corms with severe infections exhibit shredded leaf bases. Small circular, brown well defined corm lesions may also be evident. Infected tissue has a sharp musty odor and a yellow brown color. Very tiny .1-.3mm diameter black sclerotia may be visible on or under the scales of diseased bulbs.

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